New Elements of the Cost of Children: Supplementary Schooling in Ghana

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Investigators: Mark R. Montgomery
Dominic K. Agyeman
Peter B. Aglobitse
Frank Heiland

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For more information please contact:

The POLICY Project
The Futures Group International, Inc
1050 17th Street, Suite 1000
Washington, DC 20036
Telephone: (202) 775-9680
Facsimile: (202) 775-9694
E-mail: policyinfo@tfgi.com
Internet: www.policyproject.com

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Mark R. Montgomery
Dominic K. Agyeman
Peter B. Aglobitse
Frank Heiland*

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1 Introduction

Education is widely believed to promote economic development, speed the completion of the demographic transition, and enhance individual well-being. The education of women has been shown to exert an influence distinct from that of men's education, with the effects being evident in many dimensions: later age at first marriage for women; lower fertility and higher rates of contraceptive use within marriage; improved child health and survival prospects; and greater investments in the education of children. The importance of maternal schooling in these dimensions has been repeatedly affirmed at global forums on population and development, such as the 1994 International Conference on Population and Development in Cairo, where it took a prominent place in a broadened population agenda.

However, few demographic studies have explored dimensions of schooling other than enrollment and the level of schooling completed. In a number of countries in the developing world, there is increasing involvement of children in supplementary forms of schooling, whether through private tutoring or the provision

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of extra classes organized by schools or teachers on a quasi-independent basis. Such supplemental instruction reflects the value that parents place on schooling and their assessments, whether favorable or unfavorable, of the net benefits of the standard modes of instruction. The provision of extra instruction is also the result of supply-side factors, namely, low teacher salaries and the need for teachers to locate additional sources of income.

In southern Ghana, the site for the research reported here, the provision of supplementary schooling seems to be due to a set of mutually reinforcing developments. There is an emerging and now widespread perception that the quality of regular schooling at the primary and junior secondary levels has declined in relation to what it was one or two decades ago. The uneasiness parents seem to feel about their reliance on the public schools appears to be spreading beyond the circles of the urban elites, and in southern Ghana, at least, concerns about the quality of instruction are being voiced even in rural communities. The continued scarcity of school places at the senior secondary and university levels adds a certain competitive element to the scene, as parents adopt new strategies to help their children secure these prized school positions.

No doubt these new developments are partly due to the gradually rising levels of education of Ghanaian parents themselves. Today's parents, owing to their own experiences with schooling, can be expected to have a keener appreciation of the elements of school quality than their counterparts would have possessed a generation ago. They are also well aware of increasing enrollment levels and the resulting "ratcheting-up" of the educational qualifications needed for their children to secure well-paying jobs.

To be sure, these developments are still more apparent in urban communities than in rural, and in some settings the demand for schooling remains thin. But in much of southern Ghana, the perceived need for supplementary schooling is adding a new element to child costs. Supplementary schooling requires new cash outlays on the part of parents, new forms of engagement with schools, teachers, and tutors, and new demands on parental time and attention. These new child-drearing costs will be increasingly important, we believe, in exerting downward pressure on fertility levels in this part of Ghana.

This paper summarizes the characteristics of supplementary schooling using data from a survey of women in four southern Ghana communities, complemented by surveys of the primary and junior secondary schools in their communities. The paper is structured as follows. In Sections 2 and 3, we briefly describe the economic theory that motivates our approach and report on the salient features of the local community environments. Section 4 depicts the supply side of the issues:

the availability and quality of regular schooling and the opportunities for tutoring and extra classes. Section 5 is devoted to the demand side, that is, to the factors at the family level that affect parental decisions about supplementary schooling. Section 6, drawing on the descriptive analysis from the previous two sections, presents results from a multivariate analysis of supplementary instruction. Section 7 summarizes the main results and discusses their implications.

2 Theoretical Foundation

From an economic perspective, education can be regarded as an investment in human capital whose yields are mainly expressed in the increment to earnings generated by each successively higher level of schooling. Non-monetary returns to education are also well recognized in the theory and empirical literature, with these returns being especially well documented in the demographic literature. In recent years, a great deal of research attention has been directed to the study of school quality, as it has become clear that the returns to schooling depend on both the level and the quality of education obtained.

Viewed in this way, tutoring and extra classes can be seen as investments in children's human capital that can complement regular schooling. As we mentioned above, very little is now known about the determinants of such complementary investments, although they are increasingly being recognized as important elements in human capital decisions.

Three broad sets of factors can be identified that affect parental decisions about whether to engage in supplementary educational investments:

1. The availability, quality and costs of regular schooling, as indicated by
    - Availability of schools
    - Student-teacher ratios
    - Teachers' qualifications
    - Course offerings
    - School fees
2. The availability, quality and costs of supplementary instruction, as indicated by
    - Availability of tutors and schools offering extra classes

- The qualifications of tutors and teachers
- Fees for supplementary instruction

3. Demand-related family and child characteristics

   - Parental perceptions and preferences, as influenced by the parents' own schooling, and factors such as religion and ethnicity
   - Household resources, as measured by income and wealth
   - Child characteristics, including gender, perceived learning abilities, and health

The first two headings above describe the supply-side conditions affecting regular schooling and the terms on which supplementary instruction can be provided. The third heading refers to the parental and child characteristics that exert an influence on the demand for such supplementary educational investments.

Supply and demand conditions are intimately linked through the community in which the households reside and in which a given set of schools is situated. In what follows, therefore, we present some of the salient characteristics of the four communities in southern Ghana where the data were gathered.

3 Data and Community Environment

The data described here are drawn from a three-year project conducted in Ghana from July 1997 to June 2000, which explores the family-level linkages between fertility and children's schooling in a society that is on the brink of demographic transition. The project is the result of an on-going collaboration between the Population Council and the University of Cape Coast, Ghana. The schooling research follows a longitudinal design at the community level: an initial survey went into the field in mid-1997 and a follow-up survey was carried out in the same communities in late 1999 and early 2000. This report uses only the data from the second survey wave.

In the current Ghanaian system of schooling, primary schooling is meant to begin when a child is 6 years of age, and upon completion of six primary grades, the child should then progress to junior secondary schooling. There is no national examination at the end of primary, although children are sometimes asked to repeat primary grades if their performance or attendance has been poor. By contrast,

at the end of the three-year cycle of junior secondary schooling, the Basic Education Certificate Examination (BECE) is administered on a nationwide basis. The score that a student earns on this examination, when taken in combination with an assessment of performance over the school year, is the major determining factor in the progression to senior secondary schooling.

The current form of the Ghanaian school system was put into place beginning in 1987; it replaced an earlier system in which the counterpart to junior secondary schooling was a four-year cycle of middle schooling. In the data to be described below, most of the adult respondents received their schooling in the pre-reform era, whereas most (although not all) of the children progressed through the system as it is currently configured.

In the public system of basic education—the primary and junior secondary levels of schooling—schooling is meant to be provided free of tuition. Nevertheless, Ghanaian parents face a variety of fees associated with schooling, ranging from fees levied by local parent-teacher associations to special sports fees and related charges. When evaluated in relation to annual income per adult, these charges may appear to be low or even trivial. But in rural Ghana, and in some low-income urban communities, the need to pay such fees in cash and on time can impose a considerable burden on parents. If the demand for schooling is fragile in any case, the imposition of fees can tip the balance between enrollment and withdrawal for low-income families.

To assess the strength of demand for schooling in a range of socioeconomic settings, we selected four communities in the Greater Accra, Central, and Western regions. Abrafo-Odumasi is a Denkyira agricultural community with two primary schools and a junior secondary school (JSS). It is the most rural of the study areas, exemplifying a socio-economic environment in which children's labor is valuable and the opportunity costs of schooling are therefore high. The Denkyira are matrilineal, and relatives other than a child's natural parents, such as a mother's brother, will often play a role in schooling decisions. In rural Ghanaian settings such as this, parental motivations for schooling remain somewhat thin, and after the primary school years the opportunity costs for parents of further schooling tend to loom large.

Mankessim is a marketing and trading community located along the main Accra-Cape Coast road. In the past, Mankessim was mainly Fanti, a matrilineal ethnic group, but it now contains a mix of ethnic groups owing to considerable in-migration. Here there are 5 primary schools, 3 JSS only and 6 combined primary and JSS schools. In such marketing centers, parents are exposed to some of the economic returns to schooling evident in the local, highly heterogeneous

labor market. Nevertheless, children's labor remains valuable and school officials say that on the main market days, attendance is decidedly lower, as children are taken from school to help their mothers sell their wares and run errands. Because Mankessim is a large community of at least 8,000 population, we selected for study one well-defined neighborhood of some 200 households containing the largest cluster of schools.

Torkuse is an important marketing and trading center in the larger urbanized community of Kasoa. The main ethnic group here are the Ewe, who are patrilineal. There are 2 primary schools and 2 JSS schools in Torkuse, both of which are public.

At the upper end of the rural-to-urban continuum is Takoradi, a city of some 100,000 inhabitants that is an hour's drive from Cape Coast, within which we have selected a middle class estate sector for study. This population is highly urban and heterogeneous, although the dominant ethnic groups are matrilineal Akan (mainly of the Fanti and Ahanta ethnic sub-groups). The city of Takoradi contains some of Ghana's best senior secondary schools as well as some lesser schools that are nevertheless among the best in the region. In Takoradi, guided by our interest in the motivations of the middle class, we identified the Efiakuma housing estates as being most appropriate for our purposes. The housing estates are organized by a state housing authority and were originally built for workers who were employed in constructing the Takoradi harbor. The members of the Efiakuma community are mainly salaried workers with some representation of elites.

In Abrafo-Odumasi, Torkuse and Mankessim, all primary and junior secondary schools were covered by a survey of school headteachers, who provided extensive information about their schools. In Takoradi, we surveyed only those schools located in the Efiakuma estates and its immediate environs. In total, the head teachers of some 39 schools were surveyed in the four communities. Table 1 shows the distribution of these schools by community.

4 The Supply Side

In this section, we draw on the head teacher surveys in an effort to describe the supply side of education in our southern Ghana communities. Four types of schools can be distinguished in the sample: government schools, religious schools, schools that have both governmental and religious aspects to their organization, and private schools. The government schools are those that were established either by the central or a local government and which are managed by

Table 1: Distribution of Schools by Community

	Number of Schools				Percentage
			Primary-JSS		
Community	Primary	JSS	Combined	All Schools	
Abrafo-Odumasi	2	1	0	3	7.7
Mankessim	5	3	6	14	35.9
Takoradi	10	5	3	18	46.1
Torkuse	2	2	0	4	10.3
Total	19	11	9	39	100.0

Table 2: Staffing of Schools

School Type	N	Minimum	Maximum	Mean	Total
Public: Full-time Teachers					
Primary	17	6	16	11	186
JSS	11	6	21	11	121
Primary-JSS combined	3	12	22	15	46
Private: Full-time Teachers					
Primary	2	4	7	6	11
Primary-JSS combined	6	10	31	22	132
Private: Part-time Teachers					
Primary-JSS combined	6	0	5	2	12

the Ghana Education Service (GES). Government-religious schools are those that were established by religious organizations but are managed by the GES. The religious schools are both established and managed by the religious organizations, although they operate under the general supervision of the GES. Private schools are, of course, established and managed by private individuals. Government-religious schools account for about half of the surveyed schools (19 of the 39 schools), while there are 12 purely government schools, 2 religious schools, and a total of 6 private schools. Of the 8 non-government schools, three are located in Mankessim and the remaining five are found in Takoradi.

School quality indicators

Staffing There are 508 teachers of all categories in the 39 primary and junior secondary schools under study, this giving an average of 13 teachers per school

Table 3: Average Student-Teacher Ratios, by Community

Community	Primary	JSS	Primary-JSS Combined
Abrafo-Odumasi	44.2	18.7	
(n)	(2)	(1)	
Mankessim	44.2	31.5	27.1
	(5)	(3)	(5)
Takoradi	40.3	23.1	25.2
	(5)	(5)	(2)
Torkuse	44.0	11.5	
	(2)	(1)	

and 1.4 per class. From the summary of school staffing shown in Table 2, we see that full-time teachers predominate, the part-time teachers being found only in the private schools. Teaching credentials are also highly uniform in the public schools. Only 3 out of the 31 public schools employ non-professional teachers on a full-time basis, whereas all but one of the private schools employs full-time non-professional teachers.

Student-teacher ratios Table 3 reports community averages for student-teacher ratios.[1] For primary schools, the average is 44 students per teacher in all communities except for Takoradi, where the ratio is about 40 students per teacher. (Recall that Takoradi is the most affluent of the study communities.) At the junior secondary level, the average number of students per teacher is markedly lower than in primary schools. Torkuse, with 11.5 students per teacher in its JSS schools, has the lowest class sizes and the most rural community in the sample, Abrafo-Odumasi, has the next-smallest class size, at some 19 students per teacher. These average class sizes must reflect demand conditions as well as decisions about school staffing. Larger class sizes are found in the more urban communities in the sample, with Takoradi (23 students per teacher) and Mankessim (32 students) having class sizes suggestive of a higher level of demand for junior secondary schooling.[2]

[1] In the computation of the student-teacher ratio, a part-time teacher is given a weight of half that of a full-time teacher.

[2] As previously mentioned—see Table 1—the latter communities also have combined primary and junior secondary schools. As Table 3 shows, the average student-teacher ratio for such combined schools in Mankessim is 27, which falls below the average of both its specialized primary and junior secondary schools. In Takoradi the combined primary-JSS schools have on average a slightly higher student-teacher ratio, 25 students per teacher, than do the "pure" JSS schools.

Table 4: Supplementary Schooling Fees by School Type and Grade (in Cedis)

	Public Schools				**Private Schools**			
Grade Level	N	Min	Max	Mean	N	Min	Max	Mean
Primary 1–3	3	0	6000	2100	5	0	10000	3180
Primary 4–5	3	0	12000	4100	6	0	10000	3317
Primary 6	5	0	12000	2160	6	0	10000	3317
Junior Secondary 1–2	5	0	11400	5140	4	300	10000	3725
Junior Secondary 3	7	300	11400	6386	4	300	10000	3725

Table 5: Average Supplementary Fees by Community

	Average Fee (cedis)	
Community	Primary	Junior Secondary
Abrafo-Odumasi	9000	6000
Mankessim	400	400
Takoradi	3778	6400
Torkuse		10200

Availability and Cost of Extra Classes

In the lower three grades of primary school in the public sector, only 3 of the 20 schools have organized in-school extra classes. In the private sector, however, five out of eight private schools organize such classes. At the upper three primary grades, the proportion of schools offering extra classes rises, the numbers increasing to five public schools and six private schools.

Supplementary instruction is more common at the JSS level. Among the public sector schools, half organized extra classes at the JS3 level and five of the 14 schools did so at the JS1 and JS2 levels. In the private sector, four out of six private JSS schools organized extra classes in school.

The fees charged for the extra classes range widely from one school to the next. A summary of the fees is shown in Table 4. As can be seen, these fees tend to increase with the grade and level of schooling.

A surprising differential emerges when these fees are considered on a community basis, as shown in Table 5. In Torkuse, no extra classes were organized at the primary level. In Mankessim, three schools organized the extra classes with an average charge of 400 cedis per term.[3] In Takoradi, four schools were involved

[3]Although a variety of arrangements are possible, our school survey asked the headteachers to

in the organization of extra classes at the lower primary level and five at the upper primary level. The charges ranged from nothing to 10000 cedis, with means of 3750 cedis and 3800 cedis at the lower and upper primary levels respectively. In Abrafo-Odumasi, however, only one primary school organized extra classes in lower primary and it charged 6000 cedis. Fees at the upper primary level were 12000 cedis, the highest of the extra tuition charges seen in our study communities at this level of schooling.

At the JSS level, Abrafo-Odumasi organized extra classes only for the JS3 students. The school charged 6000 cedis per term for these classes. Three of the Mankessim schools set fees in the range of 300–600 cedis, with a mean of 400 cedis. In Takoradi, three schools were involved in the extra classes for JS1 and JS2, while for JS3 the number of schools increased to five. The charges were in the range of 4000–10000 cedis, with average of about 6400 cedis per term. In Torkuse, extra classes were organized for all the classes in both schools, with an average of 10200 cedis.

These descriptive findings suggest that charges for supplementary instruction may well be higher in the smaller and more rural areas. The limited number of schools and teachers in these communities may in turn place limits on the possibilities for privately organized instruction. In such small communities, teachers can exert something akin to monopoly power in the business of supplementary instruction. Of course, they probably face weaker and more price-elastic demand for supplementary instruction.

At the primary school level, all the schools that organized extra classes provided English Language and Mathematics instruction. In more than half of these schools, Integrated Science, Environmental Studies, Ghanaian Language and Culture, Religious and Moral Education in addition to Music and Dance, were also taught. At the JSS level, extra classes were given in English Language, Mathematics, General Science, Agricultural Science, Environmental Studies, Ghanaian Language and Culture, Social Studies, Vocational Skills and Pre- Technical Skills, which were taught in all the ten (10) schools involved in extra-class organization. Religious and Moral Education and French were also taught in at least 70 percent of these Junior Secondary schools. Apparently, junior secondary level extra classes concentrate on the subjects that will appear in the Basic Education Certificate Examination (BECE) given at the end of JSS.

Of the 31 public schools in our sample, 11 encouraged students to take extra classes through private arrangements made outside the school. Four of the eight

provide estimates of fees on a per term, per student basis.

private schools also encouraged such outside-school extra classes. According to the head teachers, the encouragement is carried out either through discussions with parents or by advising the pupils to attend such classes.

The most important reason why the out-of-school extra classes are encouraged is for the improvement of the performance of the pupils. To a lesser degree, these extra classes are also thought to help in occupying the students after school hours.[4]

5 The Demand for Supplementary Schooling

We now turn to the survey data collected from women, which include extensive information on the educational histories of their children. For each child of age 6 and above, the survey inquired into attendance at the primary, junior secondary and senior secondary levels, with probes to determine grade repetition, transfers among schools, and supplemental instruction.

Almost all children in this sample—well over 90 percent in each community—enrolled in the first grade of primary school. A statistical investigation of enrollment (not shown here) indicates that primary enrollment is nearly universal, although significant percentages of children do not enroll at age 6 but instead experience delays in entry to primary. For present purposes, we believe that we can safely restrict the analysis of demand for supplement schooling at the primary level to those children who have ever attended primary. This results in a sample of 935 children. A similar approach to JSS-level instruction is somewhat less well-justified. Our statistical investigation of enrollment (not shown) indicate that 70–80 percent of all children who attend primary school will go on to attend JSS or middle school, its counterpart in the pre-reform era. Some 463 children in our sample attended JSS schools or middle school, its earlier equivalent. At the senior secondary level, our sample of children is too small—only 137 students—to permit any statistical analyses, but we will present some descriptive findings.

Table 6 describes the percentage of children who took supplementary instruction at the primary, junior secondary, and senior secondary levels. Some 33 percent of children who ever attended primary school took supplemental classes at that level. The percentage rises to nearly half of JSS students (49.5 percent) and 72 percent of students at the senior secondary level. As noted above, much of the

[4]For one of the 15 schools, the main reason for the encouragement of extra classes outside school hours is that the school itself is not in the position to organize the extra classes. This is because schools operate in a shift system whereby two different schools use the same facilities in different parts of the school day.

Table 6: Percentage of Students Taking Supplemental Classes

	Primary (n=935)	**JSS** (n=463)	**Senior Secondary** (n=137)
Total	32.8	49.5	72.3
Child's Sex			
Male	30.6	42.4	68.1
Female	35.2	56.9	76.9
Natural Father			
Not in household	25.8	44.2	68.8
In Household	40.4	56.1	76.7
Fostering Status			
Not fostered	32.4	48.7	73.8
Fostered	37.0	57.5	60.0
Mother's Occupation			
Non-farm	37.6	52.3	72.3
Farm	16.6	40.7	72.2
Mother's Education			
None	20.8	40.1	57.1
Any primary	25.0	33.3	75.0
Any middle or JSS	33.7	52.5	80.0
Any senior secondary	62.3	66.2	73.7
Household Socioeconomic Index			
Poorest Third	18.3	35.3	71.1
Upper Two-Thirds	36.8	52.7	81.3
Community			
Abrafo-Odumasi	27.9	52.0	73.5
Mankessim	31.5	38.0	62.2
Takoradi	42.9	51.8	81.0
Torkuse	30.9	55.8	75.0

Note: Base is all students ever attending level.

instruction at the JSS level is oriented to the BECE examination that is given in the third year of junior secondary schooling.

The table also presents differentials in supplementary instruction by various socioeconomic categories. Several of these bivariate associations merit further discussion.

Child characteristics We are surprised to find that girls are more likely than boys to take supplementary classes. This is an unexpected difference which, as will be seen in a moment, is robust to the inclusion of a variety of socioeconomic control variables. Large differences are also evident when we compare children whose own fathers reside in the household with children whose fathers reside elsewhere. We had also expected that children who are fostered to the household—being neither the children of the mother nor of her spouse—would be less likely to receive supplemental instruction. The percentages shown in Table 6 do not strongly support this view, except at the senior secondary level. If anything, it would appear from the bivariate associations that fostered children are somewhat more likely to take supplemental schooling.

Mother's characteristics The occupation and education of the mother are strong bivariate predictors of supplemental instruction. The children of women who are farmers are much less likely to receive such instruction at the primary and junior secondary levels, whereas the children of better-educated mothers are much more likely to receive extra instruction at least at the primary level and perhaps at the junior secondary level as well.

Household and community characteristics Using data on the quality of housing, access to piped water, sanitary methods of waste disposal, access to electricity, and ownership of a working set of consumer durables, we devised an index of the household's relative socioeconomic position. Our approach was to apply the method of principal components to these disparate individual indicators, and then to rank households according to the principal components score. We distinguished between households falling in the lowest third of the sample on these scores and those in the upper two-thirds. To judge by this measure of relative poverty, poorer households appear much less likely to invest resources in supplemental instruction. Only 18 percent of children in the poorer households receive such instruction at the primary level, by comparison with 36 percent of children

from the better-off households. Large differences are also evident at the junior secondary and senior secondary levels of schooling.

We see differences in supplemental instruction across the four study communities that are likely to stem from both demand and supply conditions. As expected, children of the housing estates of Takoradi are most likely to take supplemental classes during primary school, but at the junior and senior secondary levels, the gap between these residents and residents of the other communities is either non-existent, reversed, or smaller than might have been anticipated.

6 Multivariate Estimates

In this section, we undertake a probit analysis to determine the net effects of key explanatory variables. with other factors held constant. The associations between supplemental instruction and the most important of these variables were shown in Table 6. For the multivariate analyses, we have added controls for the age of the child, the age of the mother, and her current marital status.

Results

Table 7 presents the findings of the multivariate analyses at the primary and junior secondary levels.

Child characteristics As can be seen, even with controls for other factors in place, girls remain significantly more likely than boys to take supplemental classes. This differential is sizable at both the primary and junior secondary level. By contrast, where the residence of the father is concerned, the associations evident in the bivariate results are greatly attenuated, and are only weakly significant even at the primary level. We can identify no statistical difference between fostered children and others in the likelihood of receiving supplemental instruction.

Mother's characteristics The occupation of the mother is highly significant at the primary and junior secondary levels. In distinguishing farming occupations from all others, however, we risk confounding an occupation effect with the effect of the community environment. In the most rural community of our sample, Abrafo-Odumasi, almost all women are farmers, and it is thus difficult to disentangle the effect of community from that of occupation as such. The education of the mother has a surprisingly weak effect overall. Only in the model of primary

Table 7: Likelihood of Taking Supplemental Classes: Probit Estimates

Explanatory Variable	**Primary Level**	**JSS Level**
Child's Characteristics		
Age	.848	-.314
($\|z\|$-statistic)	(4.62)	(0.41)
Age squared	$-.57 \cdot 10^{-1}$	$.13 \cdot 10^{-1}$
	(4.19)	(0.04)
Age cubed	$.11 \cdot 10^{-2}$	$-.26 \cdot 10^{-3}$
	(3.65)	(0.34)
Female	.136	.336
	(3.52)	(10.32)
Natural father in household	.179	-.050
	(1.86)	(0.14)
Child is fostered	-.088	-.042
	(0.64)	(0.22)
Mother's Characteristics		
Age	-.008	-.009
	(1.58)	(1.16)
Not currently married	-.231	-.489
	(0.88)	(1.78)
Farming occupation	-.639	-.386
	(14.46)	(2.02)
Any primary school	-.124	-.103
	(0.48)	(0.33)
Any middle or JSS	.278	.050
	(1.48)	(0.66)
Any senior secondary	.894	.461
	(6.72)	(0.93)
Household and Community Characteristics		
Household in poorest third	-.387	-.319
	(2.35)	(1.01)
Mankessim	-.579	-1.138
	(11.40)	(6.31)
Takoradi	-.198	-.613
	(6.41)	(5.00)
Torkuse	-.327	-.300
	(5.36)	(2.01)
Constant	-3.450	3.966
	(5.38)	(0.86)

Note: Base is all students ever attending level.

instruction does mother's schooling attain statistical significance, and this is only for the small group of mothers with senior secondary schooling. In our complementary investigation of children's enrollment and educational attainment (results not shown here), mother's schooling showed considerable strength in comparable multivariate models. Evidently, the direct effects of mother's schooling in the new dimensions of human capital investment are much smaller or more difficult to isolate than in the enrollment and attainment dimensions.

Household and community effects The household index of relative poverty, in which we singled out households in the lowest third of the distribution of scores, shows some empirical strength in predicting supplementary instruction at the primary level. It is insignificant at the junior secondary level, however. The community differences, with Abrafo-Odumasi being the omitted category, suggest that the advantages of the more urbanized sites of Takoradi and Mankessim are due mainly to their favorable socioeconomic composition. With socioeconomic composition controlled, children resident in these sites appear to be somewhat less likely to take part in supplementary schooling.

7 Summary

We began this analysis with the observation that the costs of childrearing are changing in Ghana. New forms of investment in children's human capital are now prominent, and are widespread even in the rural areas of our study. Interestingly, Ghanaian parents are more likely to make these new investments in supporting the schooling of their girls than they are for the boys. Why this is so remains unclear. It may well be that the opportunity costs of additional class time are higher for adolescent boys than for girls, a difference that might discourage such supplementary investments for boys. But given the focused orientation of extra classes on subjects that will be tested in the BECE at the end of junior secondary schooling—the critical gateway leading from basic to senior secondary schooling and beyond—we are surprised at the evident preference for providing girls with such extra training.

The educational value-added of supplementary schooling remains to be documented. Although we are aware of no research on the subject in Ghana, educational specialists with whom we have discussed the issue express doubt that extra classes at the primary level make much of a contribution to knowledge. Perhaps these investments are simply a signal of the value that parents place on schooling

and reflect their sense of an increasingly competitive environment in which parents must make a concerted effort to invest in their children's human capital. Over time, such heightened attentiveness to child investments can be expected to act much like an increase in the overall costs of childrearing, reducing the appeal of larger families and paving the way for a more profound demographic transition.